AMR104X
Mobile Internet Solution
User Manual

Designed for your
Mobile Life

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Antenna Installation

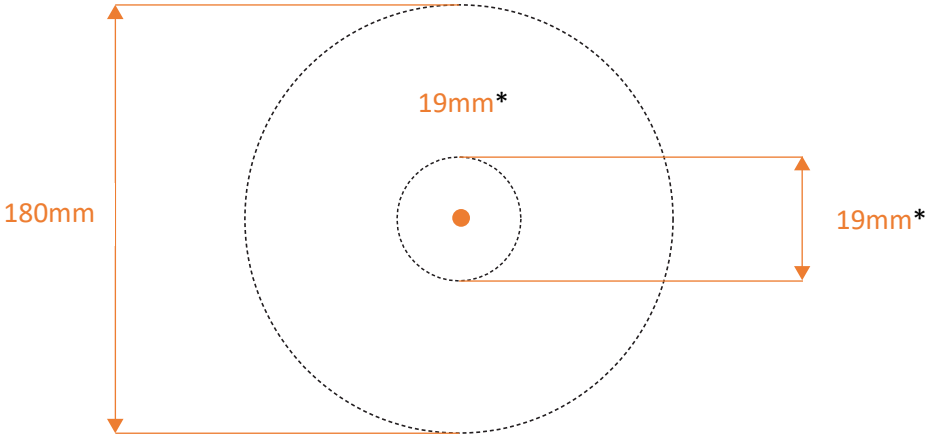
This antenna does not require a ground plane in order to operate, so may be fitted on a metal or plastic roof panel.

Step 1

When the antenna is to be co-located with other antennas or roof mounted equipment, try to achieve a minimum of 30cm (12”) clearance around the antenna in order to avoid de-tuning and interference issues. The antenna will fit on a panel up to 9mm (0.35in) thick – an extender kit is supplied for thicker panels.

Step 2

Mask the panel area around the hole position to protect the paintwork and headliner. Drill a pilot hole, and then either use a hole cutter of correct size or increase the hole diameter to 19mm (or 25mm if using extension bolt), ensuring that drill/cutter bit does not contact the internal headliner. Clean area around the hole, carefully removing all swarf, debris and any grease.



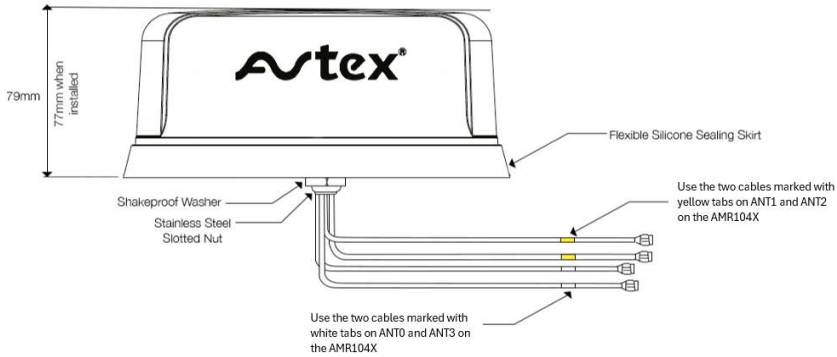
* 25mm if using extension bolt

Step 3

The adhesive pad provides a means to affix the antenna and to prevent rotation during installation, it also augments the sealing function of the antenna to the mounting panel provided by the sealing boot – it is recommended that the installation is not carried out in temperatures of less than 50°F (10°C).

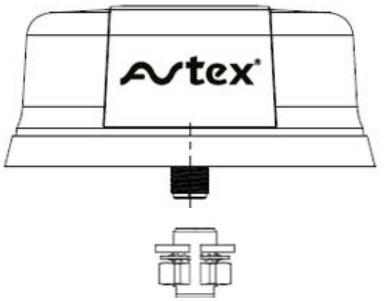
Step 4

Remove the protective backing from the underside of the antenna and feed the coaxial cables through the panel. Position the antenna over the hole ensuring correct secure location and stick the antenna to the panel by applying firm downward pressure. The antenna can be fixed in any orientation.



Step 5

If required, an extension bolt is supplied which can be fixed over the existing bolt enabling the antenna to be fitted with various panel depths.



Step 6

A slotted/split nut is provided in order to simplify fitting it over the coaxial cables. When fitting the nut, it is important to ensure that the cables are held centrally whilst the nut is correctly started on the threads. The nut should fit freely by hand and only require a final tighten with a spanner. Assemble the nut and washer from the underside and tighten to a recommended torque of 5Nm (3.6 ft/lbs). Ensure that the sealing boot is properly compressed.

Wherever possible we recommend you test the system before installation.

Avtex recommends installation to be carried out by a professional installer.

The antenna can be positioned in any orientation.

The antenna is designed for a permanent installation and under normal circumstances once installed should not be removed.

If preferred some additional silicone can be applied around the base

Installation Warning

Routing and terminating coaxial cable(s)

Connect the extension coaxial cables to the antenna and route the cables to the radio equipment.

When routing the cables take care to avoid running them adjacent to any existing vehicle wiring or fouling any moving vehicle components. The cables must not be routed in front of any airbag device. Fit the correct coaxial connectors or adapters to the cables as required. If extension cables are required, please contact your retailer.

Commission and test

Check the comms cables:

- Earth continuity: connector body to vehicle ground should measure <0.2Ω (where applicable).
- For LTE elements connector body to center pin should measure low resistance (elements are DC grounded). WiFi elements should measure open circuit using the same test.
- Connect the Cellular/LTE and WiFi cables (if applicable) or secure unused pigtails.

RF Safety Note – Ensure that the antenna is mounted in such a way that no person is likely to be within a distance of 30cms (12”) from the antenna during use. Ensure that the antenna is used only as supplied. The co-axial cables should not be cut shorter or otherwise modified.

General Safety Note – Make sure that the product is mounted so that it cannot fall and cause injury. Do not chew the product or put it in your mouth. Do not leave children unsupervised with the product or packaging.

Waste electrical products should not be disposed of with household waste. All electronic products with the WEEE logo must be collected and sent to approved operators for safe disposal or recycling. Please recycle where facilities exist. Many electrical/electronic equipment retailers facilitate “Distributor Take-Back scheme” for household WEEE. Check with your Local Authority or electronic retailers for designated collection facilities where WEEE can be disposed of for free.

REACH (Registration, Evaluation, Authorisation and Restriction of Chemicals, EC 1907/2006). This product contains Lead (CAS No. 7439-92-1) which is classified as an SVHC (Substance of Very High Concern) as being toxic to reproduction under Article 57c. of REACH. Do not chew parts or put them in mouth, keep away from unsupervised children. Dispose of parts as WEEE waste do not send to landfill.

CE

Object Reference: L55AN-*

Object Description: Low Profile MiMo Antenna with active GNSS Antenna

Manufacturer: Avtex, Calon Point, 1 Fountain Lane, Cardiff, CF3 0FE, UK

This declaration is issued under the sole responsibility of the manufacturer. The object of the declaration described above is in conformity with the relevant Union Harmonization Legislation below: Directive 2014/53/EU – Radio Equipment Directive (RED) Harmonised Standards and References:
EN 301 489-1 (V2.1.1): “Electromagnetic compatibility and Radio spectrum Matters (ERM); Electro Magnetic Compatibility (EMC) standard for radio equipment and services; Part 1: Common technical requirements”.
Referencing EN 61000-4-2:2009 – Electrostatic Discharge Immunity and EN 61000-4-3:2006 +A1:2008 +A2:2010– Radiated RF Immunity
EN 300 440-1 V1.6.1 (2010-08) – Electromagnetic compatibility and radio spectrum matters (ERM); short range devices; radio equipment to be used in the 1GHz to 40GHz frequency range; Part 1: Technical characteristics and Test methods in accordance with EN 300 440-2 V1.4.1 (2010-8) –
Electromagnetic compatibility and radio spectrum matters (ERM); short range devices; radio equipment to be used in the 1GHz to 40GHz frequency range.

Low Voltage Directive: Directive 2006/95/EC (Electrical Equipment designed for use within certain voltage limits) of August 2007.
Compliance is declared according to:
EN62368-1: 2014 Audio/video, information and communication technology equipment.

Safety requirements: RoHS 2 compliance is declared per Directive 2011/65/EU and its subsequent amendments with exemption 6.c applied. This product contains lead as an alloying element in a copper alloy containing up to 4% lead by weight.

Avtex’s sole liability for incorrectly certifying a product shall be either replacement of the product or, alternatively and in the sole discretion of Avtex, return of the purchase price paid for the relevant Avtex Antenna product.

AMR104X Basic Setup

Router

Step 1

After SIM card activation please follow below:

- A standard size SIM must he used. (See below)
- Insert the SIM card into the SIM 1 holder, (SIM 1 is top slot on picture below)
- Push the SIM 1, ident of the card towards ETH1 of the device until you feel “click.”(Foil side of the SIM facing downwards on picture below)
- If also using SIM 2 the SIM orientation will be opposite, ident facing edge of the device. (Foil side facing upwards on picture below)

Please Note: Your AMR104X will function fully with only one SIM, which can be inserted into either slot.

Step 2

Attach the antennas as follows.

- Leads from the antenna:
  - Yellow > ANT1 and ANT2 antenna connectors
  - White > ANT0 and ANT3 antenna connectors
- WIFI Stick antennas > WiFi 1 and 2 antenna connectors.

Please take care of centre pins when inserting into connectors

Step 3

Please attach the fixing brackets with the screws (supplied) to the rear of the AMR104X, then attach inside your vehicle.

Step 4

Connect the power adapter to the socket on the front of the device. Ensure switch is off until ready to use. Then plug the other end of the power adapter into a power outlet.

Please use the power cables supplied with the product.

Step 5

At power up of the AMR104X please always allow 2-3 minutes for the device to fully boot up and establish network connection.

See below the display showing the device is fully operational.

Step 6

The WiFi SSID is the network that will be visible when you search with any compatible WiFi device, the WiFi password is the unique password for your AMR104X.

The SSID and password are written on the label on the rear of the AMR104X and will also contained on the labels inside and outside the box.

(We recommend keeping a confidential record of the password, SSID, IP address, device serial number and password for your reference and logging onto extra devices in the future).

Please Note: Your AMR104X can have up 100 separate devices connected at any time, but too many devices logged onto the router can slow down performance and use extra data.

Smart Device

To connect the AMR104X to any Smart device, iPhone, Android device, iPad etc. either using the standard WiFi setup in the device's se ttings menu or by scanning the QR code that can be seen on the AMR104X labels.

Step 1

Using the camera on your smart device scan the QR code on any of the AMR104X labels, select the message when it appears on the screen.

Step 2

Select join, your device will automatically logon to the AMR104X without the need for you to input the device password. Your device will now have internet connection via the AMR104X.

Windows Machine

Step 1

Perform a basic Wi-Fi scan on Windows device.

Step 2

Highlight Avtex **** and select connect.

Step 3

Input the password from the label of the Avtex**** and press Next.

Step 4

Confirmed connected as standard network connection.

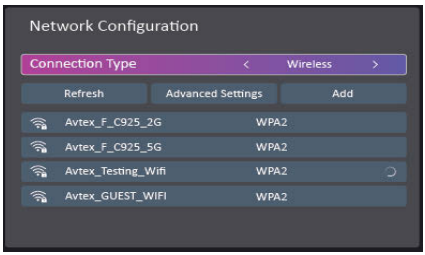
Connecting Avtex Television

It is recommended wherever possible to use an ethernet cable to connect the AMR104X to your television to fully optimise connectivity.

Below is connection method for wireless connection, both connection methods are also included in your Avtex television's QSG.

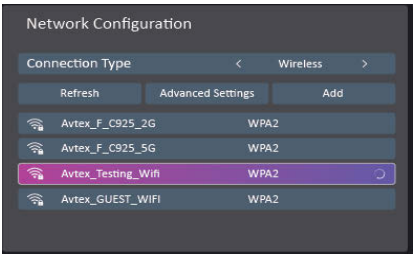
Step 1

Select Network in the TVs setting menu, then access Network Configuration Option on your Avtex Smart TV, ensure Wireless setting look for Avtex_AMR_****



Step 2

Select, highlight and press OK and wait for password prompt

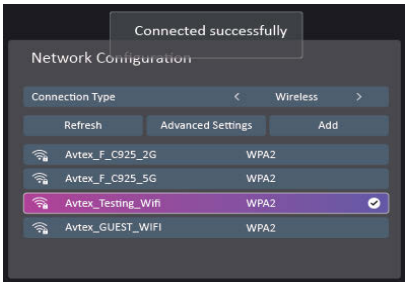


Step 3

Input the password from the label of the AMR104X and press Connect (upper/lowercase sensitive)

Step 4

Wait for the “Success” message, a tick will displayed against the device connected to.



Accessing Web-interface

Once your SIM card is setup the AMR104X is ready to go and as long as you have sufficient network coverage your devices will be able to access the internet. Wherever possible it is strongly advised to leave all options in the factory default settings.

However, if you need to access any of the top-level settings please see below.

To access the web settings, you need to be logged onto the AMR as previously mentioned and then in the browser enter the IP address of the AMR, the IP address is 192.168.1.1

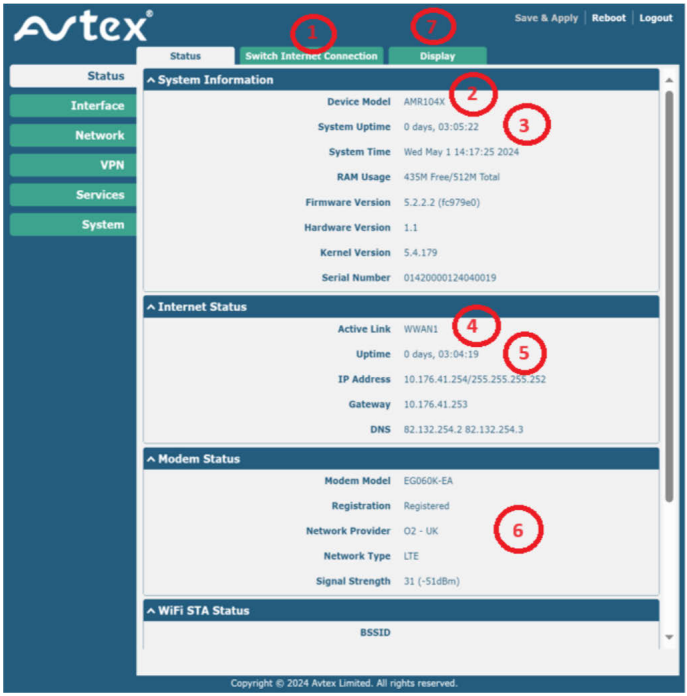
Username: - Avtex
Password: - Refer to password on device label

It is possible to access this from any web browser on a connected PC/laptop, tablet, smart phone or television.

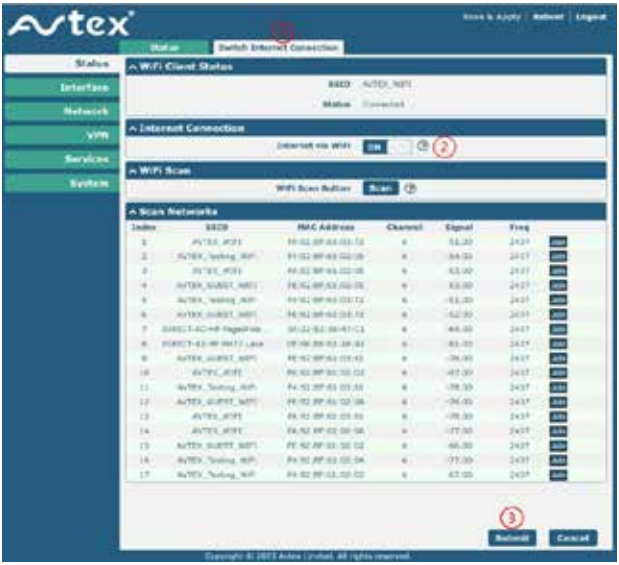
You are then presented with a status overview page, where the user can see Device name, LTE signal strength, SIM slot active(Active link), a LTE/WiFI toggle tab (Switch internet connection), and other status conditions.

The IP address and password will also be listed on the device, and on the spare label included with the standard accessories.

1. LTE/WiFi Option (see page 15)
2. Device Name
3. Device powered on time.
4. SIM in use (WWAN1 is SIM1)
5. Time of network connection
6. Carrier Information
7. Toggle display ON/OFF



LTE / WiFi Toggle



It is strongly advised wherever possible to use a LTE (mobile connection) but the AMR104X can also connect to a local WiFi to create a local access point. To access this feature, you will need to connect via the IP address as previously described and select the “Switch Internet Connection” tab, (1). Set “Internet via WiFi “ to ON (2). Select the “Submit “option (3). Available WiFi access points will be shown in the list.

Select the wanted WiFi access point by selecting the corresponding “Join” button and input the password when prompted.

Please Note: Accessing any local WiFi may have limited download speeds and each device connected to the AMR will affect the connection speed.
The AMR will be connected to the WiFi and your devices need to be connected to the AMR using usual login procedure as explained previously.
Leaving in LTE mode the AMR will automatically connect whenever a network signal is available.
If the WiFi network employs a Captive Portal then you will need to consult with the provider if you wish to gain access.

AMR104X – Advanced Settings

It is **strongly recommended** to only access the AMR104X overview menu as explained above, however you can enter the advanced settings and alter default parameters within the device.

To access the advanced menu settings, you need to be logged onto the AMR as previously mentioned and then in the browser enter the IP address of the AMR, the IP address is 192.168.1.1

Username: - admin
Password: - Refer to password on device label

Changing SSID and security settings

Select WiFi (1)

Select Access Point (2)

Make wanted changes and select "Submit" (3)

"Save and Apply" to save. (4)

Setting the SIM PIN (if required)

The PIN number when required will be supplied by the SIM provider, if after setup you do not obtain network connection please confirm your SIM PIN settings and if required follow the process below

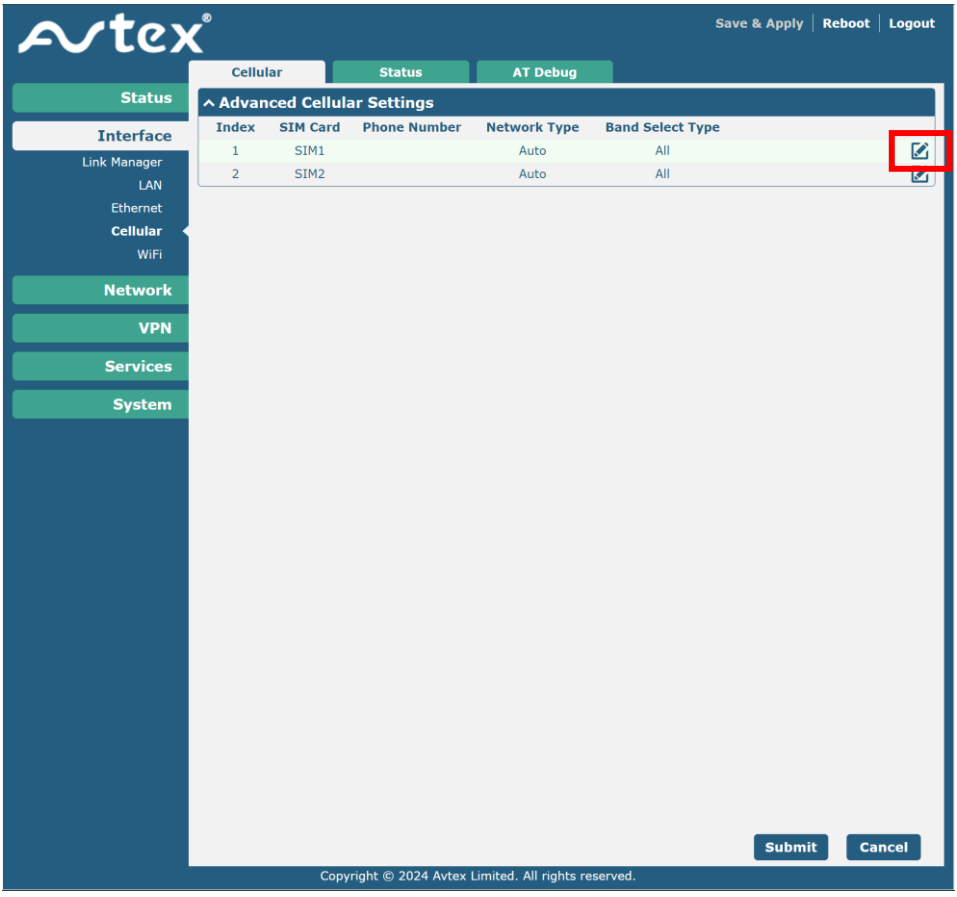
Step 1 – Access the AMR using 192.168.1.1

Username – admin

Password – Password on the device label

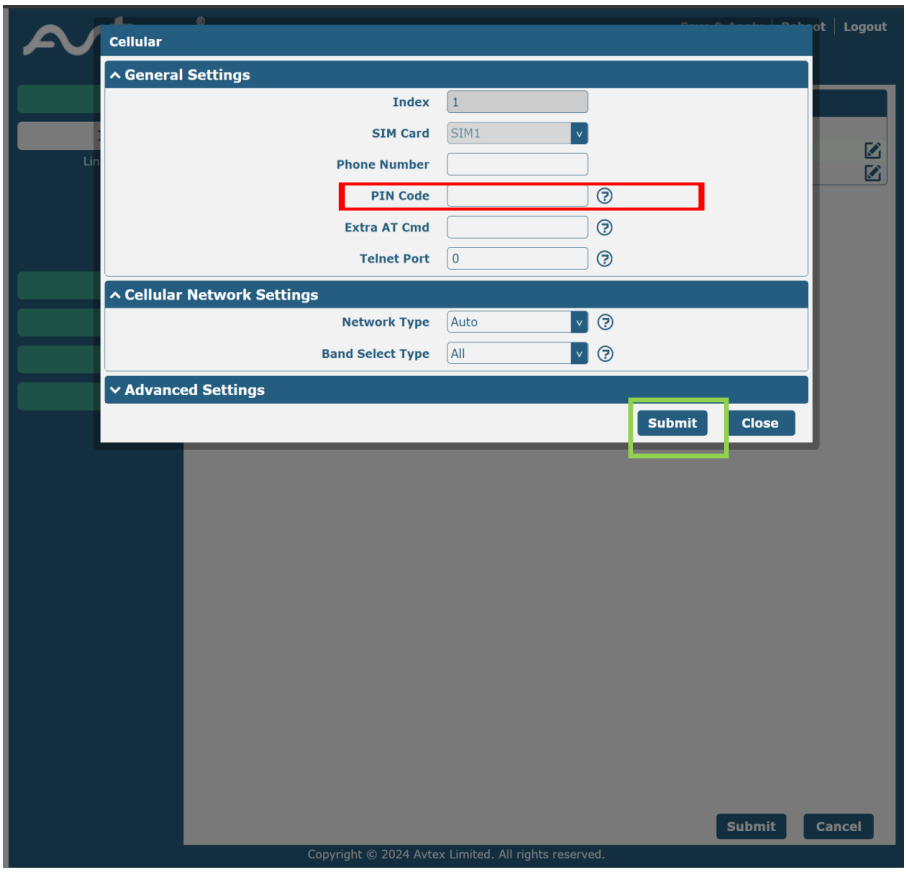
Step 2 – Select Interface > Cellular

Edit the SIM of choice by selecting edit icon.

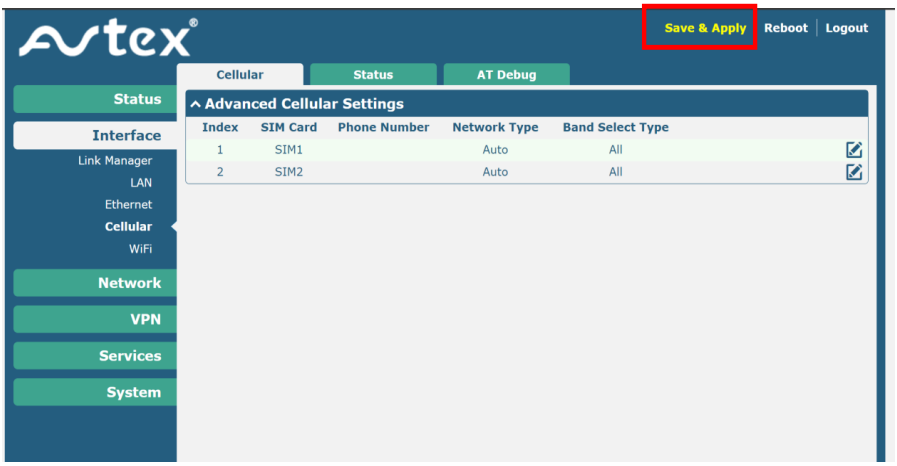


Step 3 – Enter the PIN code supplied by your network provider in the highlighted box

Select Submit



Step 4 - Press “Save & Apply” to confirm your changes



AMR104X Re-boot / Factory Reset

Using the Reset button with a pin if required, the AMR104X can be rebooted or totally reset and all settings can be restored to the factory settings. However please be cautious performing a total reset as passwords will be randomly generated with the only way to reset via the advanced UI and a wired connection to the device.

Press and hold the reset button:
If the duration is 2~5 seconds; the reboot operation starts after the button is released.
If the duration is 5~10 seconds; the restore default parameters operation starts after the button is released.
If the duration is more than 10 seconds, this operation is ignored.

If two consecutive Restore Default Parameters are executed within one minute, the second execution will Restore Factory settings.
(strongly advised not to perform this reset without discussing with Avtex engineer first) .

After any reboot or factory restore please allow up to 3 minutes before the AMR104X is once again visible as a WiFi network.

It is recommended the router is fully powered down when not in use for a period of time.

Display

No SIM
No Coverage
Faulty SIM

Top Left
Carrier Details
Sim slot in use

Top Right
Service received
Signal Strength

Bottom Left
Data used within calender month

Bottom Right
Number of devices connected via WiFi

Top Right
Shows set to WiFi repeater mode

AMR104X Specifications

Cellular Interface	
Number of antennas	2
Connector	SMA-K
SIM	2, Standard SIM
Ethernet Interface	
Number of ports	2 x 10/100Mbps 2 LAN by default
Magnet isolation protection	1.5KV
WiFi Interface	
Number of antennas	2
Connector	RP-SMA-K
Standards	802.11b/g/n, supports AP & Clients
Frequency bands	2.4GHz
Security	WEP, WPA, WPA2
Encryption	64/128 AES, TKIP
Data speed	2*2 MIMO, 300Mbps
Absolute maximum VDC	30 Vdc（DI/DO）
Absolute maximum ADC	10 mA（DI/DO）

Others

Reset button	1 x Reset
LED indicators	1 x 2.8" Display

Power Supply and Consumption

Connector	4 Pin socket with lock
Input voltage	9~30V DC
Power consumption	Idle: 100 mA @12V 1.0A(peak) @ 12V

Physical Characteristics

Ingress protection	IP30
Housing & Weight	Metal/Plastic, 700g
Dimensions	175x130x39 mm
Installations	Desktop, wall mounting
Operating Temperature	-40~+85 C
Storage Temperature	-25~+70 C

Terms and Conditions

Terms and conditions as regards installation and maintenance of your Avtex AMR104X Router & 5G Antenna (for full terms and conditions see www.avtex.co.uk).

Your AMR104X is a rugged design specifically for use on the move and is covered by a limited 1 year parts and workmanship warranty ('warranty'). The router is designed to be maintenance free and the antenna cover need only be gently washed occaisionally to maintain optimum signal reception. Please do not remove the antenna cover, use solvents, drive your vehicle through an automated was nor use a pressure washing device directly on the cover.

All of these actions may result in damage and will void the warranty. Fitting of the antenna is permanent and whilst installation is simple Avtex Limited ('Avtex') recommend it be carried out by a professional installer. Avtex accepts no responsibility for any liability arising directly or indirectly from the installation nor removal of the AMR104X. You should ask your installer for a warranty covering the removal of the antenna in the event of any defect including installation.

Only defects relating to the manufacture of or defective parts comprising the AMR104X as a result of faulty workmanship are covered by the warranty. Specifically excluded is any liabilityrelating to damage to your vehicle or caravan or any part of it arising from, either directly or indirectly from the installation or removal of the AMR104X.

Please register your product within 28 days of purchase at www.avtex.co.uk/support. In he event of a warranty claim please ensure you retain a proof of purchase as your warranty may be v oid if proof cannot be provided. Your warranty is not transferrable to a new owner if your vehicle is sold. It is not recommended that the antenna be removed in any event, except in the circum stances of a warranty claim and only then by a professional installer.

Communications technologies are fast changing and whilst we anticipate your product will serve y ou for its lifetime Avtex cannot be responsible for changes in technology beyond its control or any issues beyond our control howsoever they may arise. For that reason the warranty is limited in that regard and excludes any such issues.

Any problems relating to the SIM card/s in the AMR104X, data usage and signal reception are excluded from the warranty, and you should contact your SIM provider.

avtex.co.uk/compliance

avtex.co.uk/security

Notes

Notes

tex

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